



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Alaskan Region

ORDER
AL
7300.7M

Effective Date:
April 30, 2007

SUBJ: Tsunami Warning System

1. Purpose of This Order. This order describes responsibilities and provides guidance to Federal Aviation Administration (FAA) facilities in Alaska for planning and taking action during tsunami conditions. This order has been coordinated with the National Weather Service (NWS) and the West Coast/Alaska Tsunami Warning Center (WC/ATWC) at Palmer, Alaska. This change transmits primarily editorial changes. Additionally, changes were made to reflect the current procedure, provide for ROC to notify Anchorage TRACON rather than via Anchorage ARTCC and to clarify that TSUNAMI test messages do not require Service B acknowledgment to ROC from Automated Flight Service Stations (AFSS) and Flight Service Stations (FSS).

2. Audience. Managers and personnel in the Alaska Flight Services Information Area Group (AFSIAG), Alaskan Regional Operations Center (ROC), AFSS's and FSS's, Anchorage Air Route Traffic Control Center (ARTCC) and Anchorage Terminal Radar Approach Control (TRACON), as well as certain employees of the NWS, the National Airspace Data Interchange Network (NADIN), and the Palmer, Alaska, and Honolulu, Hawaii, Tsunami Warning Centers.

3. Where Can I Find This Order. You can find this order on the Directives Management Information System (DMIS) website: <http://dmis.faa.gov>.

4. What This Order Cancels. Order AL 7300.7L Tsunami Warning System, dated April 3, 2003, is canceled.

5. Background. All tsunami warnings, watches, and information for the area from the western Aleutians through southern California, for any earthquake in the Pacific Basin, will be issued by the WC/ATWC. The system is a cooperative effort by many federal and state agencies and other nations bordering on the Pacific Ocean using seismograph stations, tide stations, communications stations, and other dissemination facilities to provide warnings and information for the benefit of the population of the entire Pacific Ocean region. A tsunami (Japanese word meaning Great Wave and pronounced soo-nam-ee) is caused by an underwater disturbance, such as an earthquake, avalanche, or volcanic eruption. They occur most often in the Pacific Ocean because most active seismic features on our planet exist around the Pacific Rim. Many people inaccurately know them as tidal waves. A tsunami is devastating to communities or inhabitants in coastal areas; therefore, the warning system is vitally important for the protection of human lives and facilities. Valdez, Kodiak, and Seward, Alaska, experienced extensive destruction and loss of life due to the tsunami caused by the earthquake in Alaska, in March 1964. As a result of this tsunami, the WC/ATWC System was established to provide more timely and effective warnings to Alaska, Washington, Oregon, California, and Canada. The WC/ATWC is located in Palmer, Alaska. As a result of the tsunami

that occurred in the Indian Ocean in December, 2004, the area of responsibility for the WC/ATWC has been expanded to include the Atlantic and Gulf of Mexico coastal states, as well as the Atlantic maritime provinces of Canada.

The Pacific Tsunami Warning Center (PTWC) in Honolulu, HI, has operational control of the tsunami warning system for the areas outside of the WC/ATWC's area of responsibility. Additionally, PTWC operates as the functional backup for the WC/ATWC. In the case of a service outage at WC/ATWC, the PTWC will assume these responsibilities on behalf of the WC/ATWC.

6. Responsibilities.

a. NADIN is responsible for dissemination of tsunami bulletins to Service B addressees in Alaska, primarily for the attention and action of coastal facilities.

b. The ROC and selected AFSSs and FSSs in Alaska are responsible for alerting local and tie-in federal, state, and community offices and facilities as indicated in this order.

7. Procedures and Actions.

a. Bulletin Distribution.

(1) Numbered Warning or Watch Bulletins (Appendix A) are issued by WC/ATWC in Palmer. Initially, if an earthquake is large enough to generate a tsunami, but a tsunami has not yet been detected, a regional warning or watch for a limited area will be issued. Based on data from the Pacific Wide Tide Gauge Network, the warning and/or watch areas may be extended or restricted depending on the severity of the tsunami. It could be canceled if no tsunami, or only a minor local tsunami, was generated.

(2) Updated bulletins are issued at least every 30 minutes by WC/ATWC with any additional earthquake or tsunami information until a final supplement is issued or the warning/watch is canceled.

(3) Upon receipt of a numbered watch or warning bulletin at the NADIN, prompt relay to Alaskan stations shall be accomplished via the FAA Service B system. (See web page for bulletin examples: <http://www.wctwc.arh.noaa.gov>)

(4) NADIN primarily uses the group code address of PDINTSUA to notify the WC/ATWC, Alaskan NWS offices and flight service stations. They may use all-circuit distribution methods to alert other than coastal stations. In the case of an east coast tsunami warning, the group code PDINTSAG is used to notify all ROCs. The Alaskan ROC is included in both of these group addresses.

b. Acknowledging and Assuring Receipt of Bulletins.

(1) The ROC, after assuring receipt of a numbered tsunami warning or watch bulletin by field facilities, shall acknowledge receipt to the originator of the bulletin (WC/ATWC) via a Service B message.

(2) In order to assure receipt of the bulletin by field facilities, a fan-out acknowledgment system will be implemented per Appendix B. The ROC shall telephone Kenai (ENA) and Juneau (JNU) AFSSs, Anchorage ARTCC Watch Supervisor, and the Anchorage Weather Service Forecast Office (WSFO) to obtain confirmation that they received the bulletin. The ROC shall also relay via telephone, watch and warning bulletins to those regional office (RO) elements listed in Appendix B.

(3) The AFSSs and FSSs are responsible for confirming receipt of the watch/warning bulletins by the stations and offices as shown in Appendix B. No action is required for advisories, information bulletins and information messages.

(4) Each FSS listed in Appendix B shall confirm receipt of the bulletin to their associated AFSS.

c. Action Plans.

(1) The AFSSs at ENA and JNU shall have a tsunami warning plan in the station that prescribes the following minimum actions for the flight plan areas for which they are responsible:

- (a) Acknowledgment to the appropriate facility for receipt of the tsunami watch or warning bulletin (per Appendix B).
- (b) Alerting of any tie-in, part-time facility that may be closed.
- (c) Notification of local coordinator and/or other local FAA managers.
- (d) Alerting of any aircraft en route to the affected area.
- (e) Methods, routes, and designated safe locations for evacuation of station personnel.
- (f) Notification of any or all of the following as appropriate: airport manager, local airline offices, local military offices, local police, any other agency or organization. (The NWS will accomplish these notifications at locations having a Weather Service Office).

(2) AFSSs shall coordinate closely with local NWS offices and local civil defense coordinators to ensure that adequate procedures for local notifications are developed and accomplished, including those times when one or the other is closed.

(3) Tsunami bulletins carry EMERGENCY priority. Delivery, acknowledgments, and notifications must be handled in minimum time.

(4) Tsunami Advisory Bulletins require no action.

d. Cancellation and Supplemental Messages.

(1) Upon receipt of a watch or warning cancellation or supplemental message, NADIN will disseminate this message in the same manner as watch or warning bulletins.

(2) Stations shall confirm receipt of the cancellation or supplemental message in the same manner as outlined in Appendix B.

e. Test Tsunami Messages.

(1) Periodically (generally once a month), the WC/ATWC will test the communications system to determine handling times and speed of communications. They will issue a Test Tsunami message (Appendix C) for this purpose. These test messages will be disseminated by NADIN the same as watch or warning bulletins.

(2) The ROC shall reply to the test messages via Service B with the requested information as indicated in Appendix C.

Example: /B
 GG PAAQYQYX
 010109 PANCYAYX
 RO10105 TSUNAMI TEST AT 010107

(3) Tsunami test messages shall be used for reviewing local plans and procedures and to simulate local actions.

(4) The ROC shall advise the AFSIAG, Quality Assurance Staff, AJR-B72, of any significant problems or delays in dissemination of tsunami messages.

8. Distribution. This order is distributed to the branch level in the Alaska Flight Services Information Area Group (AFSIAG), to division level in the Regional Operations Center (ROC), and to all Automated Flight Service Stations (AFSS) and Flight Service Stations (FSS). The AFSIAG shall distribute the order to the NWS, the National Airspace Data Interchange Network (NADIN), and the Palmer, Alaska, and Honolulu, Hawaii, Tsunami Warning Centers.



Robert N. Lewis
Acting Regional Administrator

Appendix A. Numbered Warning or Watch Bulletins

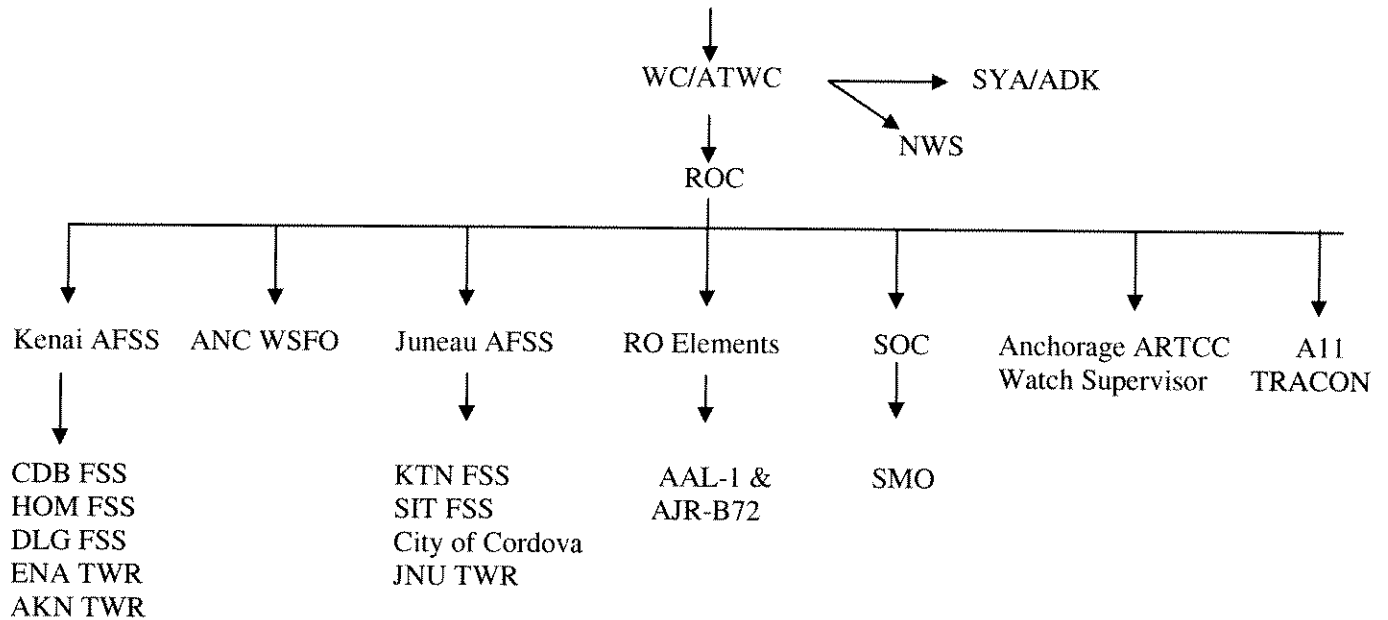
WARNING: Indicates that a Tsunami is imminent and that coastal locations in the warned area should prepare for flooding. The initial warning is typically based on seismic information alone. Earthquakes within the WC/ATWC area of responsibility (AOR) with a magnitude 7.1 to 7.5 trigger a warning covering the coastal regions within 350 kilometers from the epicenter. When the magnitude is over 7.5, the warned area is increased to 3 hours tsunami travel time. For earthquakes outside the WC/ATWC AOR, warnings are only issued for earthquakes greater than magnitude 7.5 and for those locations within 3 hours tsunami travel time of the leading edge of the wave. As tidal gauge data showing the tsunami is recorded, the warning will be canceled, expanded incrementally, or expanded to cover the entire WC/ATWC AOR in the event of a major tsunami.

WATCH: An alert issued to areas outside the warned area. The area included in the watch is based on the magnitude of the earthquake. For earthquakes in the magnitude range 7.1 to 7.5, no watch area is issued. For earthquakes over magnitude 7.5, the watch area is 3 hours tsunami travel time from the warning zone. The watch will either be upgraded to a warning in subsequent bulletins or will be canceled depending on the severity of the tsunami.

ADVISORY: A message issued when a major earthquake has occurred outside the AOR prompting the PTWC to issue a tsunami warning, and the event is either far enough away so that no AOR region is within a watch/warning or the tsunami poses no threat to the AOR. Advisories are updated hourly as PTWC issues bulletins and can be upgraded to a watch or warning, if necessary.

INFORMATION BULLETIN: Bulletins issued for earthquakes less than warning threshold, but greater than 6.5 which are not likely to trigger a Tsunami. Unless further information is gathered on tsunami generation, only one information bulletin is issued for an event.

INFORMATION MESSAGE: A message issued for earthquakes below magnitude 6.5 strongly felt along coastal areas of the AOR. The purpose of an information message is to rapidly inform residents that there is no tsunami danger.

Appendix B. FAN-OUT ACKNOWLEDGMENT SYSTEM

- a. All stations should receive the warning message direct from WC/ATWC via Service B.
- b. ROC shall acknowledge receipt via phone or Service B message to WC/ATWC.
- c. ROC shall telephone the Kenai and Juneau AFSSs, Anchorage ARTCC watch supervisor, A11 TRACON and the Anchorage WSFO to confirm receipt of the Watch or Warning Bulletin.
- d. ROC shall relay watch/warning Bulletins to ADES and indicated RO elements by telephone.
- e. Where Service B is not available, phone notification is appropriate.

Appendix C. TEST TSUNAMI MESSAGES

TEST TSUNAMI MESSAGE

NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK

1018 AM PDT FRI APR 21 2006

...THIS IS A TEST TO DETERMINE TRANSMISSION TIMES INVOLVED IN THE
DISSEMINATION OF TSUNAMI WATCH AND WARNING INFORMATION...

RESPONSES ARE REQUIRED FROM

1. ALL NATIONAL WEATHER SERVICE FORECAST OFFICES IN ALASKA - EXCEPT
FAIRBANKS - AND ALL COASTAL FORECAST OFFICES IN WASHINGTON
- OREGON AND CALIFORNIA.
2. ALASKA WEATHER SERVICE OFFICES AT KING SALMON - COLD BAY -
KODIAK - VALDEZ - YAKUTAT - ANNETTE AND ST. PAUL AND USAF
11TH RESCUE COORDINATION CENTER AT FORT RICHARDSON.
3. STATE WARNING POINTS OR EOC AT FORT RICHARDSON AK -
CAMP MURRAY WA - SALEM OR - SACRAMENTO CA AND THE PROVINCIAL
EMERGENCY PREPAREDNESS PROGRAMME BC.
4. U.S. COAST GUARD 11TH - 13TH AND 17TH DISTRICT OFFICES - KODIAK

COMMSTA AND CAMSPAC POINT REYES CA.
5. FAA REGIONAL OPERATIONS CENTERS AT ANCHORAGE - LOS ANGELES
AND SEATTLE.
6. ALL TSUNAMI READY COMMUNITY WARNING POINTS.

RESPONSES SHOULD INCLUDE

- A. TIME-OF-RECEIPT
- B. AGENCY NAME

C. EMAIL ADDRESS

D. PHONE NUMBER

WEATHER SERVICE OFFICES SHOULD RESPOND IN ACCORDANCE WITH LOCAL DIRECTIVES. ALL OTHERS SHOULD REPLY BY ONE OF THE AVAILABLE METHODS BELOW:

EMAIL ADDRESS - WCATWC-AT SIGN-NOAA.GOV [i.e. wcatwc@noaa.gov]

AFTN ADDRESS - PAAQYQYX

FAX - 907-745-6071